Thoughts From an Aerial Film Manufacturer

2004 NAIP Wrap up Meeting

September 16th 2004

Presented by Douglas A. DeGraff

- Flight Height & Scales
- Quasi-Natural Color from C-IR
- Advantages of Film
- Questions

Minimally, 75% cost of NAIP program is image capture and getting to compilation

Weather

Flight line miles, and length

How dispersed

Processing & scanning for film only

- NAIP has kept USGS-NAPP standards for film, with 3.5-minute flight line centers at 20,000ft AGL
- Digital has flown at variety of elevations, and this might increase with new cameras and focal length lenses being evaluated and approved
- The final products are not the same, but maybe they should be. DOQQ's in one or two meter resolutions and Compressed County Mosaics. Very few photographic products are produced. This scale limits resale value.

Reducing the side-lap on 6” film cameras from 40% to 25% would cut 20% of the flight-line miles with an equal reduction in film, scanning and compilation. 20% of 75+% or 15+% cost reduction

Higher altitudes would also would lower the flight-line miles

Lower altitudes would increase the resale value & can be re-sampled as needed

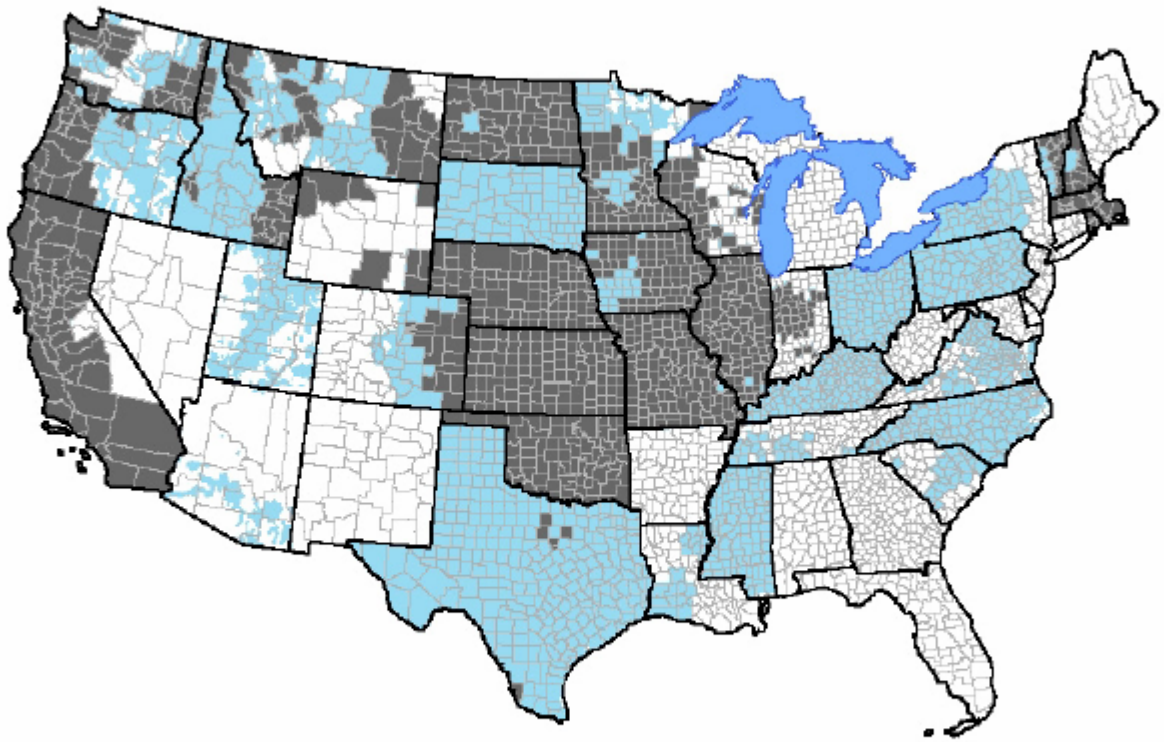
Easier on and more planes available

When polled, the biggest reasons for digital capture were that it was faster, cheaper and gave both C-IR and Natural color.

NAIP has proven the first two to be false. Even with the advantages of reduced F-L-M, digital has proven to be more expensive, many more images to mosaic and have not shown to be any faster to deliver.

OCTOBER 22, 2004

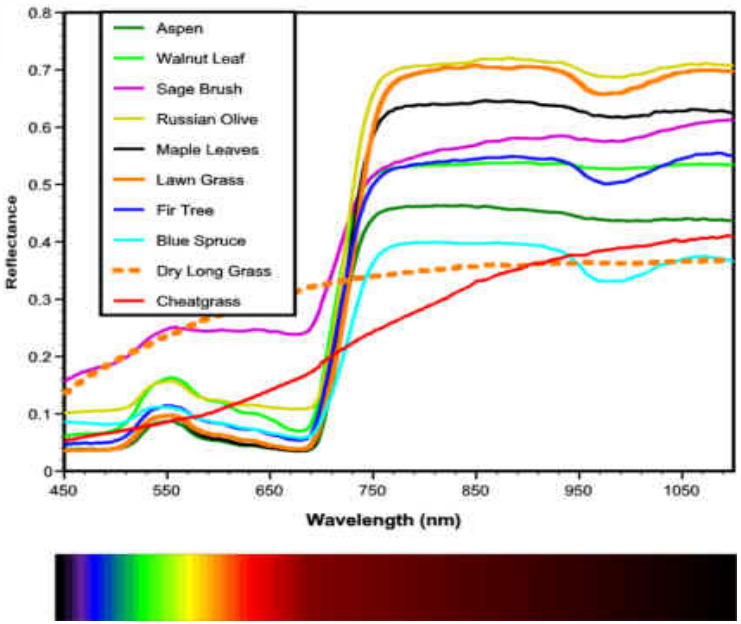
2004 NAIP
COMPRESSED COUNTY MOSAICS DELIVERED



COUNTIES UNDER CONTRACT
CCMs SHIPPED

USDA-FSA-APF

Reflectance VS Wavelength

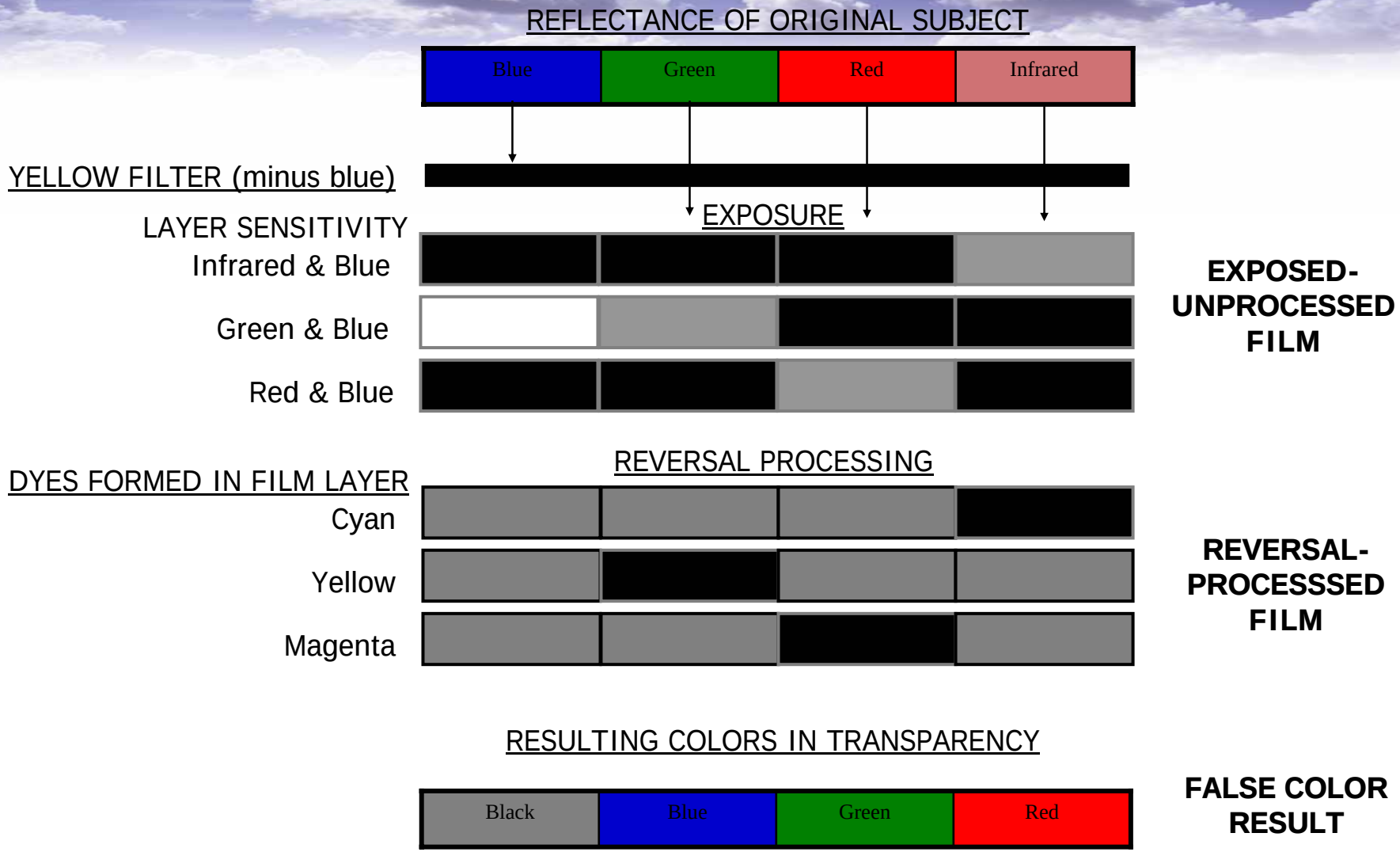


- VEGETATION IS ENHANCED DUE TO INFRARED REFLECTANCE AT THE RED EDGE
- CIR FILM CLEARLY DIFFERENTIATES THE LAND AND WATER INTERFACE
- CIR PENETRATES HAZE BETTER THAN B&W; THEREFORE, INCREASING CONTRAST AND RESOLUTION
- MORE DIRECTLY OBSERVABLE INFORMATION IS CAPTURED ON CIR FILM THAN OTHER FILM TYPES.

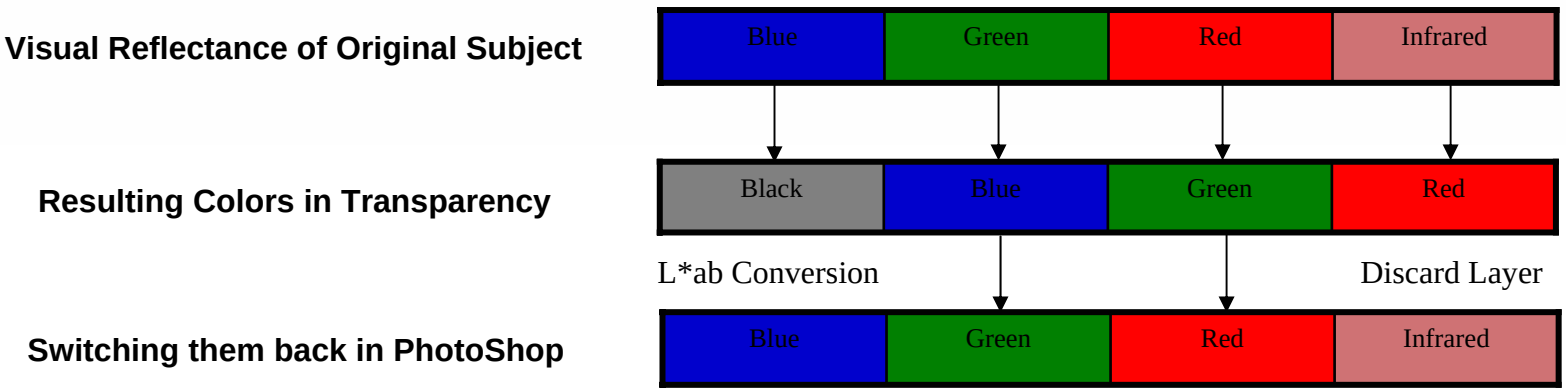
Kodak

TAKE PICTURES. FURTHER.™

How does CIR work?



Quasi-Natural Color from C-IR



Now I want to take the image back to the original visual reflecting colors.

- The Red layer gives IR information which is not visual so it is discarded.
- Green layer becomes the Red layer and the Blue layer becomes the Green.
- Switch the RGB image to CieLab, capture the Black layer and reduce it to about 33%. It now becomes our new Blue layer. Things that are truly Black or Gray will also have R & G so will stay neutral.
- Additional work in PhotoShop or other image manipulation program will help.

Results

C-IR 2003

03 Quasi- Natural

Natural 2004

SURDEX 50th Anniversary

Kodak

Advantages of Film Capture

Archival for over 75 years with less than 10% dye fade.

Re-scan Archival. A 9”x9” image will be able to be digitized into any new format

Stand alone admissible in all US Courts

Independent Certifying Agency for known accurate results

Very Cost effective, efficient as shown by the NAIP program

- Versatile
- Archival
- Fast
- Great Quality
- Low Price Leader

Any Questions?

Enjoy the cookies, Thank you!